

while unsaddling his horse in the barn. His clothes were completely torn from his body, his watch-chain melted, and his face and body badly mangled. The horse was killed and one end of the barn torn out. Clinton Valley, Ohio, 20th, boy instantly killed while riding horseback. His body bore no marks, but the horse on which he rode was torn to pieces. Jamaica, N. Y., 23d, a young girl while seated under a tree was struck and knocked a distance of 10 feet, but not seriously injured; three other persons near by were fatally injured. Detroit, Mich., 16th, house struck, blackening the walls and tearing off picture moldings. At the Marine Hospital a forty-foot flag-staff situated on the roof was shattered to within 20 feet of the base, where the electric current was conducted down the iron braces, making two small sharply cut holes in the corrugated iron roof. Ohio, 16th, the most destructive electric storm ever known was experienced throughout central and northern portion of the state. Dubuque, Iowa, 18th, a man while seeking shelter in a ice-house was struck, the lightning scorching one of his legs severely and tearing off his shoe and stocking. A brakeman leading two dogs within the yard of the Illinois Central Railroad Company had both of them killed while he escaped the slightest injury. At the Norwegian Plow Works the lightning made such a terrific display as to drive all of the employees out of the buildings. At the Illinois Central Freight Office, balls of fire were constantly shooting from the telephones. Wauwatosa, Milwaukee Co., Wis., 16th, during a light rain the lightning descended the chimney of a house, killing one of the occupants. The room in which the person was killed had the plastering torn from the walls; a heavy bedstead was jerked into the middle of the room, shattered into long pieces and set on fire. A stove was smashed to atoms, and crocks, pins and other wares were broken and twisted into all kinds of shapes. The other rooms of the house were not in the least affected, and six children sleeping in the main part were undisturbed.

Atmospheric Electricity Interfering with Telegraphic Communication.—Ft. Sill, 6th, 7th, 9th; Jacksboro', 7th, 9th; Stockton, 1st, 5th, 6th, 8th, 26th, 27th; Decatur, 9th.

Auroras.—There were no unusually brilliant displays during the month, and no continuous observations on a single date embracing a considerable extent of territory. The following stations reported on various dates: Portland, Me., 5th, 10.30 p. m.; Burlington, Vt., 5th, 9.30 p. m.; Woodstock, Vt., 5th, 6th; Springfield, Mass., 29th, 9 p. m.; Ithaca, N. Y., 4th, early part of evening; Rochester, 4th, 9 p. m.; Detroit, 6th, 1.30 a. m.; Alpena, 9th, 8 p. m.; New Corydon, Ind., 17th, 10 p. m., small extension; Marquette, 5th, 9.15 a. m., 7th, early morning; Dubuque, 13th, 8.40 to 9.22 p. m., 20th, 8.30 to 9.11 p. m., 25th, 8.40 p. m.; St. Vincent, 30th, 12.45 a. m.; Clear Creek, Nebr., 16th, 17th, 21st, very faint.

Zodiacal Light.—Cleveland, 28th; Nashville, 14th to 19th, 22d to 24th, 27th, 29th; New Haven, 15th; Monticello, Ia., 3d, 17th.

OPTICAL PHENOMENA.

Lunar halos have been observed in the various districts on the following dates: New England, 9th, 11th; Middle Atlantic states, 2d, 7th to 10th, 15th; South Atlantic states, 1st, 5th, 7th to 9th; East Gulf states, 3d, 6th, 8th to 10th; Texas, 1st to 8th, 10th, 24th; Ohio valley and Tennessee, 6th to 13th, 16th, 18th, 19th, 24th; Lower Lake region, 11th, 24th, 30th; Upper Lake region, 4th, 6th to 9th, 15th, 18th, 19th, 20th, 21st; Upper Mississippi valley, 4th, 9th, 10th, 11th, 14th; Missouri valley, 3d, 16th; Northern Plateau, 6th, 13th; Middle Plateau, 10th, 11th; Southern Plateau, 5th, 9th; Middle Pacific coast region, 9th, 11th.

Solar halos have been observed in the various districts on the following dates: New England, 3d, 7th, 9th, 10th, 14th, 16th, 19th, 24th, 26th; Middle Atlantic states, 25th; South Atlantic states, 2d; Ohio valley and Tennessee, 1st, 10th, 12th, 13th, 15th, 16th, 18th, 19th, 21st to 30th; Lower Lake region, 6th, 25th; Upper Lake region, 6th to 9th, 11th, 15th, 20th, 29th; Upper Mississippi valley, 2d, 5th, 9th, 17th, 18th, 21st to 24th, 28th, 29th; Missouri valley, 5th; Eastern Slope, 9th, 10th, 20th, 25th; Texas, 5th; Northern Plateau, 2d, 6th, 14th, 16th, 10th, 22d, 24th, 25th; North Pacific coast region, 1st, 2d, 16th, 23d, 25th, 29th; Middle Pacific coast region, 2d, 5th, 11th to 14th, 23d, 25th.

Polar Bands.—Portland, Or., 16th, 18th, 29th; Rio Vista, Cal., 2d, 19th, 27th; New Corydon, Ind., 11th; Guttenburg, Ia., 5th; Fayette, Miss., 26th; Freehold, N. J., 5th, 19th.

Mirage.—Indianola, 23d, 24th; Cape May, 28th, appeared in the southern horizon from 3 to 6 p. m.

MISCELLANEOUS PHENOMENA.

Meteors.—Umatilla, 2d. Boise City, 17th, 21st. Ft. Missoula, 24th. Ft. Apache, 20th. Bismarck, 23d. St. Vincent, 30th; very brilliant, starting from near the head of "Hercules" and fell slowly to the earth; was of a greenish color, and its brightness so great that the whole sky seemed darkened when it disappeared. Denison, 23d, 26th. Decatur, 4th. Corsicana, 16th, 19th: that of latter date was very brilliant; appeared about 70° above horizon and pursued a northwesterly course, its path being about 25° in length; it left a bright trail, lasting several seconds. Mobile, 27th. Davenport, 2d, 27th. Cairo, 24th. Milwaukee, 21st; brilliant; from southeasterly part of heavens; it left a long luminous track in its course toward the pointers in "Ursa Major." Cleveland, 24th, 29th. Detroit, 12th; several observed. Ocean City, Md., 25th. Bangor, Me., 7th, 10 p. m.; large; seemed to fall directly to the earth. Mt. Wash-

ington, 12th. Green Springs, Ala., 23d, 10.11 a. m.; an explosion was heard at different places, some of the points being as far as 50 miles apart; observers report it as being a double explosion; a gentleman living in Pickens county, 26 miles west, reported that a meteoric stone fell at his place and buried itself in the ground. Princeton, Cal., 3d, 7.30 p. m.; moved from zenith with southeast trail. St. Meinrad, Ind., 21st. Monticello, Ia., 18th. Rowe, Mass., 12th, 14th. Clear Creek, Neb., 12th, 16th, 17th, 26th. Freehold, N. J., 22d. Aiken, S. C., 29th. Stateburg, S. C., 15th, 20th, 23d, 30th.

Forest Fires.—Ft. Apache, 23d, fire on all sides of post; whole country lighted up at night. 25th, fires gradually going out, except in mountains. Pike's Peak, 21st, 22d, fires burning on mountain. Ft. Grant, Ariz., 2d, 3d, fire in Sulphur Springs valley and Santa Rita mountains; 12th, 14th, 23d, large fires in Aravapia mountains, 20 miles from station. Ft. Bayard, N. M., 16th, 17th, 22d, 23d to 25th. Brackettville, Tex., 23d.

Earthquakes.—Campo, Cal., 30th, sharp shock at 8 a. m., causing buildings to shake considerably; direction from southeast to northwest; was preceded and accompanied by a heavy rumbling noise.

Sunsets.—The characteristics of the sky as indicative of fair or foul weather for the succeeding twenty-four hours have been observed at all Signal Service stations. Reports from 182 stations show 5,444 observations to have been made, of which 20 were reported doubtful; of the remainder 5,424, or 84.4 per cent., were followed by the expected weather.

Sun Spots.—The following record of observations, made by Mr. D. P. Todd, Assistant, has been forwarded by Prof. S. Newcomb, U. S. Navy, Superintendent Nautical Almanac Office, Washington, D. C.:

DATE— June, 1881.	No. of new—		Disappeared by solar rotation.		Reappeared by solar rotation.		Total number visible.		REMARKS.
	Groups	Spots.	Groups	Spots.	Groups	Spots.	Groups	Spots.	
7, 5 p. m.	1	2			1	2	3	9	
11, 7 a. m.	2	20					4	40†	
12, 9 a. m.	2	5	1	3	1	2	5	45†	
16, 9 a. m.	2	10	1	5	1	3	7	50†	
16, 7 a. m.	0	0	0	0	0	0	7	40†	
18, 7 a. m.	0	0	2	10	0	0	5	25†	
19, 2 p. m.	0	0	0	0	0	0	4	15	
21, 10 a. m.	0	0	0	0	0	0	3	10	
22, 10 a. m.	0	0	0	0	0	0	2	5	
23, 8 a. m.	2	5	0	0	2	5	4	10	
24, 5 p. m.	0	7	0	0	0	0	4	17	
26, 1 p. m.	1	25†	1	2	1	15	4	40†	
29, 5 a. m.	1	25†	0	0	1	10	5	65†	Many of the spots small.
30, 9 a. m.	0	0	0	0	0	0	5	60†	Many of the spots small.

†Approximated.

Faculae were seen at the time of every observation

Mr. William Dawson, at Spiceland, Ind., reports as follows: 3d, 2 groups, 65 spots; 9th, 5 groups, 27 spots; 10th, 5 groups, 33 spots; 11th, 4 groups, 35 spots—nearly all at east side; 16th, 7 groups, 35 spots; 21st, 3 groups, 8 spots; 25th, 5 groups, 2 large ones near east side; 30th, 4 groups, 90 spots, several very large. Mr. D. Trowbridge, at Waterburg, N. Y., reports: 2d, 4th, 2 groups, 9 spots, one large group of six spots near centre of disk; 11th, 2 groups; 13th, 2 groups, one the same as observed on 11th, and one near east margin of disk; 14th, 4 groups, 9 spots, two of the groups must have been on the disk on 13th, but were not seen; 15th, 3 groups, 5 spots, two of the groups seen on the 14th have disappeared; one new one near east side appeared by rotation; 18th, 5 groups, 6 spots, faculae near east group and east margin of disk; 19th, 5 groups, 5 spots; 23d, 1 spot, faculae in east; 24th, 4 groups, 6 spots, faculae in east, 2 new groups appeared by rotation; 25th, 4 groups, 7 spots, faculae in east and west; 26th, 3 groups, 3 spots, west group disappeared by rotation; 29th, 5 groups, 15 spots, faculae in east. Mr. H. D. Govey, at North Lewisburg, Ohio, reports: observed on every day during month, except 5th and 6th, when it was cloudy; the largest were observed on the 1st; least, 10th and 22d; most numerous, on 14th and from 25th to 30th.

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